

Reliability and Validity Assessment of Affective Disturbance and Distress Scale Among Working Women in Pakistan

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Abstract

The present study aims at determining the reliability and validity of self-administered Affective Disturbance and Distress Scale among working women in Pakistani service organizations. In this regard, questionnaires were distributed among 60 lecturers and doctors. Initially reliability statistics were calculated, which showed that Cronbach's alphas ranged from 0.71 to 0.81, whereas inter scale correlations ranged from 0.59 to 0.77, thus confirming the reliability of scale. On the other-side, content validity of scale was established through experts or field researchers in the university. Construct validity of scale was checked by Exploratory Factor analysis, which showed that the factor loadings ranged from 0.84 to 0.91. The overall results showed that the Affective Disturbance and Distress scale demonstrated good psychometric properties following its administration among the Pakistani working women. Therefore, it can be utilized as a reliable and valid self-administered instrument for assessing the mental health of working women in Pakistan.

Keywords: Reliability; validity; distress; working women; Pakistan

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1.0 INTRODUCTION

Recently because of far-reaching changes the employment opportunities for women have increased all over the world that have promoted them to take up employment. Consequently working women face the difficulties to balance home and work responsibilities. It may expose them to stress and health hazards due to conflict between work/family interfaces (Parker, 2004). This conflict arises because women still take responsibility for household and childcare (Greenhaus, 2003) along job.

The ratio of women employees is also increasing at the diverse workplaces in Pakistan but little attention has been given to research on stress among working women (Nageena, 2009). The research been conducted has mainly focused on the personal issues such as Family and income utilization problems (Rakshanda, 2005), Marital adjustment (Hina *et al.*, 2007) and the impact of working status on the lives of working women (Waris, 2008). Further, diverse range of both self and clinically administered scales and instruments are now a day available to the researchers for the measurement of human's mental health (Baer & Blais, 2010). Such as Nageena (2009) utilised the urdu version of the occupational stress scale developed by Sohail and Khanum (2000) to find out the level of stress among married and unmarried working women. Occupational stress has 90 items on ten subscales. Hina (2005) used Beck Depression Inventory, consisting of 21 items that assess the severity of affective, behavioral, cognitive, and somatic symptoms of depression.

However, the purpose of this study is to assess the experience of having psychological symptoms including depression, anxiety, anger and mania. Therefore it has adopted Harrel and Myers (1996) Affective Disturbance and Distress Scale. The original scale includes 60 items, divided into 5 subscales: depression, anxiety, anger, mania and general distress (Tina, 1999). Each subscale contains 12 items which were developed based on clinical descriptions of relevant disorders and syndromes, related literature and the clinical experience of authors (Hagen, 1998). Psychometric data on this scale is limited. In a study of 93 men the internal consistency reliability coefficient were as follows: .98 for the total scale, .94 for depression, .94 for anxiety, .93 for anger, .80 for mania and .92 for general distress (Statelty, 1997). By keeping in view the limited reliability and validity factor of Affective disturbance and distress scale and its usage in different culture, it becomes necessary to establish its psychometric evidence for this study in eastern setting.

In this regard Affective disturbance and distress scale was distributed among 60 working women in service organization of Pakistan with aim to find out not only the mental health status of the participants but also to find out both validity and reliability of this scale in new setting. The findings of pilot study shows that Affective disturbance and distress scale confirmed good reliability and validity, after its administration among working women. Therefore it has been concluded that this scale could be used confidently for assessment of distress among Pakistani population.

2.0 MATERIAL AND METHODS

The current study has utilized Harrel and Myers (1996) Affective disturbance and distress scale. The purpose of this scale is to assess overall psychological distress. The original scale is divided into five subscales: depression, anxiety, anger, mania and general distress. However for the purpose of this study, items from each subscale with the highest factor loadings are included. The detail of subscale and their relevant item is given in Table 1.1:

Table 1.1 Subscales and Items on subscale

Subscale	Item No	Item on Subscale	Number of Items
Anger	13	You had temper outbursts, yelling and screaming at others	08
	14	You generally felt angry most of the day	
	15	You were impatient with others, snapped at others easily	
	16	You argued with people	
	17	You told someone off (Scold)	
	18	You felt irritable	
	19	You were impulsive acted without thinking	
	23	You engaged in behaviors that could have negative consequences.	
Anxiety	5	You had a low energy level, were easily worn out	06
	9	You felt fearful of people or activities	
	11	You had physical changes like racing heartbeat, dizziness or shortness of breath(not related to an illness)	
	12	You felt on edge, jumpy	
	20	You made risky decision, judgment was questionable	
	22	You exaggerated or lied about things	
Depression	1	You felt like there was no point or purpose to your life.	06
	2	You felt empty inside	
	3	You felt helpless, powerless to improve or change things in your life.	
	4	You felt pessimistic	
	6	You had nothing to look forward to each day	
	24	You craved excitement or thrills	
Mania	7	You felt like you were going crazy, might have nervous breakdown	05
	8	You have sudden feelings of panic that you could not control	
	10	There were disturbing thoughts or images you could not get out of your mind	
	21	You were restless, agitated, couldn't stay still for long	
	25	Things were building up so much inside, you felt like you might explode	

The table shows that Affective disturbance and distress scale has been divided into 4 parts in such a way that total 08 items are related to Anger, 06 are related to Anxiety, 06 items are related to depression and last 05 items are related to Mania. Population and Sample: The population of the current study consists of 210 working women of service organizations. For the purpose of this pilot study a sample of 30% was taken into account. According to Neuman (2006), a sample of 30% is sufficient to conduct a pilot study for the population under 1000 participants. Therefore, in order to determine the validity and reliability of affective disturbance and distress scale, a random sample of 60 participants was drawn from academic institute and hospital. Characteristics of total sample for pilot study are listed in the Table 1.2

Table 1.2 Characteristic of respondents

Participants	Total	Age	Experience
Doctors	30	24 or above	1 year or above
Teachers	30	24 or above	1 year or above

2.1 Statistical Analysis

The reliability and validity of Affective disturbance and distress scale was determined through following statistical analysis:

Reliability Analysis:

- Cronbach's Alpha Coefficient
- Inter Scale Correlations

Validity Analysis:

- Content Validity
- Construct Validity
- Convergent Validity
- Discriminant Validity

2.2 Procedure of Data Collection

A total of 60 questionnaires were distributed in an academic institute and a Hospital. Researcher sought help of a contact person from each organization to distribute and collect the questionnaires. Each questionnaire was accompanied by a cover letter which contained researcher's introduction, purpose of the study and instructions on how to fill questionnaire. Each respondent was required to return completed questionnaires to his/her organization's contacted person. A follow-up call was made to contact person one week after the distribution of questionnaire to inquire the status of data collection. Upon confirmation of data collection completion, researcher collected the questionnaires from contact person of each organization. The whole process was completed within four weeks.

3.0 RESULTS

3.1 Reliability Analysis

Reliability of the research is concerned with the credibility of data collection. Reliability demonstrates procedures, focuses on the accuracy of measurement and the ability to repeat the research. If the same procedure is to be repeated, findings must be same. Thus, it is well known as repeatability and consistency over time. According to Yin (1994), the extent to which the research is replicable and the research findings can be repeated determines the reliability of a research study.

The reliability of Affective Disturbance and distress scale was determined by performing Cronbach's Alpha and Inter-scale correlation. The Table 1.3 shows that initial psychometric analysis, using Cronbach's Alpha Coefficients yielded an internal consistency coefficient of .90 for the entire 25 items. The mean alpha is .76. For subscales, alpha coefficient ranges from .71 to .81. The subscale "Depression" has the highest alpha coefficient (.81). This proves that all the subscales are internally consistent measures.

Table 1.3 Alpha reliability coefficient of total and subscales of distress scale

S.No	Subscale	No. of Items	Cronbach's Alpha
1	Anger	8	.76
2	Anxiety	6	.71
3	Depression	6	.81
4	Mania	5	.76
Total		25	∑.76

The reliability of scale was further determined by inter-correlation of the subscales. The Table 1.4 shows that the scores on subscales are significantly correlated, which proves that the Affective Disturbance and Distress Scale (Harrel & Myers, 1996) possesses internal consistency.

Table 1.4 Inter-scale correlation of distress subscales

Sub-Scale	Anger	Anxiety	Depression	Mania
Anger	1.0			
Anxiety	.639	1.0		
Depression	.591	.771	1.0	
Mania	.760	.758	.720	1.0

3.2 Validity Analysis

The validity of scale is linked with the correctness of the scale. Therefore a valid instrument should have the ability to detect any difference in measurement by giving error free measurement (Web, 2008). Scale validity refers to the extent to which an operational measure truly reflects the concept being investigated or the extent to which the latent construct is the underlying cause of item co-variation (De Vellis, 2003). Thus, it is essential to finalize the measurement scale in the research. For scale assessment of this study, content validity and construct validity applied by Netemeyer *et al.*(2003) and Morgan *et al.*(2004) have been used.

3.2.1 Content Validity

Content validity refers to the degree to which the items in the instrument scale reflect the concept of study. Content validity of Affective Disturbance and Distress Scale was sought by seeking opinion of sixty participants about the items. In addition, the instrument was assessed through experts or field researchers in the university (Hardesty and Bearden, 2004) at the initial stage of research. Experts were asked to comment on wording, sequencing and layout of scale items as earlier this was used in different settings.

3.2.2 Construct Validity

Construct validity examines validity by investigating the measurement item to see if it reflects the latent construct which it is designed to measure. The construct validity of Affective disturbance and distress scale was checked through convergent and discriminant validity. Convergent validity could be determined by exploratory factor analysis, whereas the discriminant validity is checked by calculating average variance extracted and then comparing it with the correlations among the variables.

Exploratory Factor Analysis

One approach that is often used to establish convergent validity is exploratory factor analysis (Rasli, 2006). Exploratory factor analysis is a method of factor loading into groups to extract underlying latent factors. It also involves grouping variables together on a factor or the precise number of factors (Hair *et al.*, 2006). It is widely used in social science research to identify the latent factors and summarising and reducing a large set of observed variables to a smaller number of factors that account for co-variation (Tabachnick & Fidell, 2007). In exploratory factor analysis, numerous methods are available for factor extraction and rotation. Among these, the principal component extract method is the most common and default in SPSS programme to extract minimum set of variables accounted for the maximum variance in the data (Tabachnick & Fidell, 2007).

Therefore, in order to find out the convergent validity of Affective disturbance and distress scale, a Principal Component Analysis technique was used, with Varimax Rotation and extraction done on Eigen values greater than 01. The Kaiser-Meyer-Olkin test of measure of sample adequacy was also computed, as recommended up to value of 0.60, indicating that data will be suitable for the Principal Component Analysis (Kaiser, 1974). Moreover, the factors loadings equal to 0.50 or greater than were considered to be significant. Principal component analysis was performed on 25 items. Inspection of correlation matrix revealed the presence of many coefficients 0.3 and above. The Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) was 0.71 which exceeded the recommended value of 0.6 (Kaiser, 1974), indicating that the present data was suitable for principal component analysis. Similarly, since the Bartlett's test was significant ($p < 0.000$), this signifies that there was sufficient correlation between variables to proceed with the analysis. The communalities for each of the 25 items ranged from .71 to .84 with factor loading 84 to 91. Such results suggest sufficient evidence of convergent validity for the Affective disturbance and distress scale (Harrel & Myer, 1984). The KMO, communalities, percentage of variance and item loading for each subscale are shown in Table 1.5.

Table 1.5 Principal component analysis of affective disturbance and distress sale

S.No	Factor	Items	KMO	Communality	Variance %	Item Loading
1	Anger	8	.68	.61 to .77	69.766%	.68 to .83
2	Anxiety	6	.73	.37 to 71	61.239%	.59 to .83
3	Depression	6	.81	.39 to 67	53.131%	.63 to .82
4	Mania	5	.72	.37 to 76	51.651%	.61 to .87

Discriminant Validity

Discriminant validity is one part of assessing construct validity in confirmatory factor analysis. It is the extent to which a construct is truly distinct from other constructs (Hair *et al.*, 2006). By using average variance extracted, discriminant validity can be measured and the results of average variance extracted should be greater than the squared correlation estimates (Hair *et al.*, 2006).

Using this approach, the researcher found discriminant validity in all latent constructs (Table 1.6). The results showed that values of all average variance extracted are greater than relevant squared correlation estimate, except those variables whose correlation coefficient is above 70 have low discriminant validity but it is not affecting the overall result.

Table 1.6 Discriminant validity

Correlation				
	Anger	Anxiety	Depression	Mania
Anger	.60			
Anxiety	.64**	.55		
Depression	.59**	.77**	.53	
Mania	.76**	.76**	.72**	.52
**. Correlation is significant at the 0.01 level (2-tailed).				
*. Correlation is significant at the 0.05 level (2-tailed).				

■4.0 DISCUSSION

The aim of this study was to examine the reliability and validity of Harrel and Myers' (1996) Affective Disturbance and Distress Scale among working women in Pakistan. The reliability statistics shows that 25 items possessed mean Cronbach's Alpha Coefficient ranged up to 0.76 and for subscales, alpha coefficient ranges from .71 to .81. Inter scale Correlations ranged from (0.59 to 0.77), which is proof of internal consistency. Similarly, validity statistics also demonstrates that the scale is suitable. As the results of exploratory analysis indicate that factor loading ranged upto 0.84 to 0.91. Similarly communalities ranged from 0.71 to 0.84. The Kaiser-Meyer-Olkin measure of sample adequacy was within range of 0.80. Further, the results of discriminant validity showed that values of all average variance extracted are greater than relevant squared correlation estimate, except those variables whose correlation coefficient is above 70 have low discriminant validity but it is not affecting the overall result. These results suggest sufficient evidence of convergent validity for Affective Disturbance and Distress Scale.

■5.0 CONCLUSION

Based on the above results and discussion, it has been concluded that Affective Disturbance and distress scale is both internally reliable and a valid tool for assessing the psychological health symptoms of employees generally and specially working women in Pakistan.

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